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1

SEQUENCE LISTING

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15 <170> PatentIn version 3.1

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Phe Asp Glu Asn Gly Val Glu Val Phe Asp Glu Lys Ala Leu Val Glu
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40 cag gaa ccc agt gat aac gat ttg gcc gaa gag gaa ctg tta tcg cag 144
Gln Glu Pro Ser Asp Asn Asp Leu Ala Glu Glu Leu Leu Ser Gln
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45 gga gcc aca cag cgt gtg ttg gac gcg act cag ctt tac ctt ggt gag 192
Gly Ala Thr Gln Arg Val Leu Asp Ala Thr Gln Leu Tyr Leu Gly Glu
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50 att ggt tat tca cca ctg tta acg gcc gaa gaa gtt tat ttt gcg 240
Ile Gly Tyr Ser Pro Leu Leu Thr Ala Glu Glu Val Tyr Phe Ala
65 70 75 80

55 cgt cgc gca ctg cgt gga gat gtc gcc tct cgc cgc cgg atg atc gag 288
Arg Arg Ala Leu Arg Gly Asp Val Ala Ser Arg Arg Arg Met Ile Glu
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60 agt aac ttg cgt ctg gtg gta aaa att gcc cgc cgt tat ggc aat cgt 336
Ser Asn Leu Arg Leu Val Val Lys Ile Ala Arg Arg Tyr Gly Asn Arg
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5	cgc gcg gta gag aag ttt gac ccg gaa cgt ggt ttc cgc ttc tca aca Arg Ala Val Glu Lys Phe Asp Pro Glu Arg Gly Phe Arg Phe Ser Thr 130 135 140	432
10	tac gca acc tgg tgg att cgc cag acg att gaa cgg gcg att atg aac Tyr Ala Thr Trp Trp Ile Arg Gln Thr Ile Glu Arg Ala Ile Met Asn 145 150 155 160	480
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20	gtt tac ctg cga acc gca cgt gag ttg tcc cat aag ctg gac cat gaa Val Tyr Leu Arg Thr Ala Arg Glu Leu Ser His Lys Leu Asp His Glu 180 185 190	576
25	cca agt gcg gaa gag atc gca gag caa ctg gat aag cca gtt gat gac Pro Ser Ala Glu Glu Ile Ala Glu Gln Leu Asp Lys Pro Val Asp Asp 195 200 205	624
30	gtc agc cgt atg ctt cgt ctt aac gag cgc att acc tcg gta gac acc Val Ser Arg Met Leu Arg Leu Asn Glu Arg Ile Thr Ser Val Asp Thr 210 215 220	672
35	ccg ctg ggt gat tcc gaa aaa gcg ttg ctg gac atc ctg gcc gat Pro Leu Gly Gly Asp Ser Glu Lys Ala Leu Asp Ile Leu Ala Asp 225 230 235 240	720
40	gaa aaa gag aac ggt ccg gaa gat acc acg caa gat gac gat atg aag Glu Lys Glu Asn Gly Pro Glu Asp Thr Thr Gln Asp Asp Asp Met Lys 245 250 255	768
45	cag agc atc gtc aaa tgg ctg ttc gag ctg aac gcc aaa cag cgt gaa Gln Ser Ile Val Lys Trp Leu Phe Glu Leu Asn Ala Lys Gln Arg Glu 260 265 270	816
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55	gaa gat gta ggt cgt gaa att ggc ctc acc cgt gaa cgt gtt cgc cag Glu Asp Val Gly Arg Glu Ile Gly Leu Thr Arg Glu Arg Val Arg Gln 290 295 300	912
60	att cag gtt gaa ggc ctg cgc cgt ttg cgc gaa atc ctg caa acg cag Ile Gln Val Glu Gly Leu Arg Arg Leu Arg Glu Ile Leu Gln Thr Gln 305 310 315 320	960
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35 40 45

10 Gly Ala Thr Gln Arg Val Leu Asp Ala Thr Gln Leu Tyr Leu Gly Glu
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15 Ile Gly Tyr Ser Pro Leu Leu Thr Ala Glu Glu Glu Val Tyr Phe Ala
65 70 75 80

Arg Arg Ala Leu Arg Gly Asp Val Ala Ser Arg Arg Arg Met Ile Glu
85 90 95

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100 105 110

Gly Leu Ala Leu Leu Asp Leu Ile Glu Glu Gly Asn Leu Gly Leu Ile
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25 Arg Ala Val Glu Lys Phe Asp Pro Glu Arg Gly Phe Arg Phe Ser Thr
130 135 140

30 Tyr Ala Thr Trp Trp Ile Arg Gln Thr Ile Glu Arg Ala Ile Met Asn
145 150 155 160

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35 Val Tyr Leu Arg Thr Ala Arg Glu Leu Ser His Lys Leu Asp His Glu
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195 200 205

40 Val Ser Arg Met Leu Arg Leu Asn Glu Arg Ile Thr Ser Val Asp Thr
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Pro Leu Gly Gly Asp Ser Glu Lys Ala Leu Leu Asp Ile Leu Ala Asp
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245 250 255

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gccgaagagg aactgttatac gcagggagcc acacagcgtg tggacgc gactcagctt 180

30 taccttggtg agattggtaa ttcaccactg ttaacggccg aagaagaagt ttatggcg

240

cgtcgccac tgcgtggaga tgcgttctcg cggccggaa tgatcgagag taacttgcgt 300

ctgggtgtaa aaattgcccgc cggttatggc aatcggttgc tggcggttgc ggaccttatac 360

35 gaagagggca acctggggct gatccgcgcg gtagagaagt ttgacccggaa acgtggtttc

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40 caaacccgta ctattcgaaa gccgattcac atcgtaaagg agctgaacgt ttacctgcga

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accgcacgtg agttgtccca taagctggac catgaaccaa gtgcggaaaga gatcgagag 600

caactggata agccagttga tgacgtcagc cgtatgttc gtcttaacga gcgcattacc 660

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720

gaaaaagaga acgggtccgga agataccacg caagatgacg atatgaagca gagcatcgac 780

50 aaatggctgt tcgagctgaa cgccaaacag cgtgaagtgc tggcacgtcg attcggtttg

840

ctgggttacg aagcggcaac actgaaagat gtaggtcgtg aaattggcct cacccgtgaa 900

cgtgttcgcc agattcaggt tgaaggcctg cggccgttgc gcgaaatcct gaaaacgcag 960

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35 ctg gtg aag cgc gaa gat cgc cag cca gtg cac agc ttt aag ctg cgc 192
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 Gly Val Ile Thr Ala Ser Ala Gly Asn His Ala Gln Gly Val Ala Phe
 85 90 95

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Ser Ser Ala Arg Leu Gly Val Lys Ala Leu Ile Val Met Pro Thr Ala	
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 Thr Ala Asp Ile Lys Val Asp Ala Val Arg Gly Phe Gly Gly Glu Val
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55 ctg ctc cac ggc gcg aac ttt gat gaa gcg aaa gcc aaa gcg atc gaa 432
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 130 135 140

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 Leu Ser Gln Gln Gln Gly Phe Thr Trp Val Pro Pro Phe Asp His Pro
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5	gac gcc cat ctc gac cgc gta ttt gtg cca gtc ggc ggc ggc ggt ctg Asp Ala His Leu Asp Arg Val Phe Val Pro Val Gly Gly Gly Leu 180 185 190	576
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15	gtg atc gcc gta gaa gcg gaa gac tcc gcc tgc ctg aaa gca gcg ctg Val Ile Ala Val Glu Ala Glu Asp Ser Ala Cys Leu Lys Ala Ala Leu 210 215 220	672
20	gat gcg ggt cat ccg gtt gat ctg ccg cgc gta ggg cta ttt gct gaa Asp Ala Gly His Pro Val Asp Leu Pro Arg Val Gly Leu Phe Ala Glu 225 230 235 240	720
25	ggc gta gcg gta aaa cgc atc ggt gac gaa acc ttc cgt tta tgc cag Gly Val Ala Val Lys Arg Ile Gly Asp Glu Thr Phe Arg Leu Cys Gln 245 250 255	768
30	gag tat ctc gac gac atc acc gtc gat agc gat gcg atc tgt gcg Glu Tyr Leu Asp Asp Ile Ile Thr Val Asp Ser Asp Ala Ile Cys Ala 260 265 270	816
35	gcf atg aag gat tta ttc gaa gat gtg cgc gcg gtg gcg gaa ccc tct Ala Met Lys Asp Leu Phe Glu Asp Val Arg Ala Val Ala Glu Pro Ser 275 280 285	864
40	ggc gcg ctg gcg ctg gcg gga atg aaa aaa tat atc gcc ctg cac aac Gly Ala Leu Ala Leu Ala Gly Met Lys Tyr Ile Ala Leu His Asn 290 295 300	912
45	att cgc ggc gaa cgg ctg gcg cat att ctt tcc ggt gcc aac gtg aac Ile Arg Gly Glu Arg Leu Ala His Ile Leu Ser Gly Ala Asn Val Asn 305 310 315 320	960
50	tcc cac ggc ctg cgc tac gtc tca gaa cgc tgc gaa ctg ggc gaa cag Phe His Gly Leu Arg Tyr Val Ser Glu Arg Cys Glu Leu Gly Glu Gln 325 330 335	1008
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50	Leu Val Lys Arg Glu Asp Arg Gln Pro Val His Ser Phe Lys Leu Arg 50 55 60	
	Gly Ala Tyr Ala Met Met Ala Gly Leu Thr Glu Glu Gln Lys Ala His 65 70 75 80	
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	Ser Ser Ala Arg Leu Gly Val Lys Ala Leu Ile Val Met Pro Thr Ala 100 105 110	
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 130 135 140

5 Leu Ser Gln Gln Gln Gly Phe Thr Trp Val Pro Pro Phe Asp His Pro
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10 Asp Ala His Leu Asp Arg Val Phe Val Pro Val Gly Gly Gly Leu
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15 Ala Ala Gly Val Ala Val Leu Ile Lys Gln Leu Met Pro Gln Ile Lys
 195 200 205

Val Ile Ala Val Glu Ala Glu Asp Ser Ala Cys Leu Lys Ala Ala Leu
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20 Asp Ala Gly His Pro Val Asp Leu Pro Arg Val Gly Leu Phe Ala Glu
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Gly Val Ala Val Lys Arg Ile Gly Asp Glu Thr Phe Arg Leu Cys Gln
 245 250 255

25 Glu Tyr Leu Asp Asp Ile Ile Thr Val Asp Ser Asp Ala Ile Cys Ala
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30 Ala Met Lys Asp Leu Phe Glu Asp Val Arg Ala Val Ala Glu Pro Ser
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Gly Ala Leu Ala Leu Ala Gly Met Lys Lys Tyr Ile Ala Leu His Asn
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Tyr Arg Phe Ala Asp Ala Lys Asn Ala Cys Ile Phe Val Gly Val Arg
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50 Leu Ser Arg Gly Leu Glu Glu Arg Lys Glu Ile Leu Gln Met Leu Asn
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Asp Gly Gly Tyr Ser Val Val Asp Leu Ser Asp Asp Glu Met Ala Lys
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55 Leu His Val Arg Tyr Met Val Gly Gly Arg Pro Ser His Pro Leu Gln
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60 Glu Arg Leu Tyr Ser Phe Glu Phe Pro Glu Ser Pro Gly Ala Leu Leu
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Arg Phe Leu Asn Thr Leu Gly Thr Tyr Trp Asn Ile Ser Leu Phe His
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 Tyr Arg Ser His Gly Thr Asp Tyr Gly Arg Val Leu Ala Ala Phe Glu
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5	ctg ctc cac ggc gcg aac ttt gat gaa gcg aaa gcc aaa gcg atc gaa Leu Leu His Gly Ala Asn Phe Asp Glu Ala Lys Ala Lys Ala Ile Glu 130 135 140	432
10	ctg tca cag cag cag ggg ttc acc tgg gtg ccg ccg ttc gac cat ccg Leu Ser Gln Gln Gln Gly Phe Thr Trp Val Pro Pro Phe Asp His Pro 145 150 155 160	480
15	atg gtg att gcc ggg caa ggc acg ctg gcg ctg gaa ctg ctc cag cag Met Val Ile Ala Gly Gln Gly Thr Leu Ala Leu Glu Leu Leu Gln Gln 165 170 175	528
20	gac gcc cat ctc gac cgc gta ttt gtg cca gtc ggc ggc ggc ggt ctg Asp Ala His Leu Asp Arg Val Phe Val Pro Val Gly Gly Gly Leu 180 185 190	576
25	gct gct ggc gtg gcg gtg ctg atc aaa caa ctg atg ccg caa atc aaa Ala Ala Gly Val Ala Val Leu Ile Lys Gln Leu Met Pro Gln Ile Lys 195 200 205	624
30	gtg atc gcc gta gaa gcg gaa gac tcc gcc tgc ctg aaa gca gcg ctg Val Ile Ala Val Glu Ala Glu Asp Ser Ala Cys Leu Lys Ala Ala Leu 210 215 220	672
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50	gcg atg aag gat tta ttc gaa gat gtg cgc gcg gtg gcg aaa ccc tct Ala Met Lys Asp Leu Phe Glu Asp Val Arg Ala Val Ala Lys Pro Ser 275 280 285	864
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30	cgc ttc ctc aac acg ctg ggt acg tac tgg aac att tct ttg ttc cac	1392
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